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the dimensions, as well as the proportions, of the parts represented. The different shapes adopted for shafts of marine engines and their accessories, cranks and rods, eccentrics and cams; toothed gearing of all usual kinds; stuffing boxes and joints; valves and cocks and pumps, and other minor parts, are all well-described and finely illustrated before the construction of engines and boilers is studied in larger plans.

Drawings and descriptive text exhibit the forms and proportions of the modern marine boiler and of all its appurtenances; while in this connection, the fuels and their composition, the properties of steam, and the economics of steam-making, are presented in a simple manner. Similar methods are adopted in the treatment of the marine engine, and the most recent types are fully described.

No attempt is made to give the mathematical principles involved in construction, or to teach the art of designing and proportioning the engine, the boiler, and their accessories. The book has little value to the engineer; but, as an introduction to the serious study of the steam-engine for marine purposes, it is admirable. The authors and publishers have done their work well, and we have rarely seen a finer piece of technical book-making. Paper, press-work, and binding are good, and its illustrations among the very best that we have ever seen in this department of literature.

NOTES AND NEWS.

MR. HENRY C. MERCER, the newly appointed Curator of American and Prehistoric Archaeology at the Museum of the University, delivered an address on "The Human and Animal Remains in the Lookout and Nickajack Caves at Chattanooga, Tenn., before the Numismatic and Antiquarian Society of Philadelphia, on the evening of Jan. 4. Mr. Mercer referred to the importance of

cave explorations in European archaeology, and stated that the one fact that we gather is that early man dwelt in caves. Little cave hunting has been done in this country, chiefly because American archaeologists have gone wild over "relics," and mounds and cliff dwellings had diverted attention from other explorations. The speaker reviewed the work done in examining caves in this country, such as the investigations made by Professor Rogers at Durham Cave and Haldeman at Chikies, as well as the Port Kennedy "bone hole" explored by Professor Cope. A great scantiness of animal remains as compared with similar caves in Europe characterizes American caves, and this is accounted for by the difference in the conditions. The Lookout Cave at Chattanooga he regarded as typical. The floor of the cave, like that of many of the other caves in its vicinity, had been disturbed during the War of the Rebellion by workmen engaged in digging nitrous earth for the manufacture of gunpowder. He talked with the men who had been engaged in this work, and learned from them the portion of the floor which they had not disturbed. The bottom of the cave contained a mass of human and animal refuse. The floor was divided into sections by the explorer, and each fragment of bone, pottery, or stone was marked with the number of the section, and a number indicating the depth; so that things found in the first foot of digging were marked "one"; in the second, "two," etc. This work was carried down a depth of about four feet to the bottom of the animal deposits, and the contents appeared entirely homogeneous. The remains were Indian throughout, and decorated pottery was found in the lowest part. No indication of palaeolithic man, nor of pygmies, nor of any one except the familiar Indian was discovered. The bones and shells have been identified by Prof. E. D. Cope, and reveal the following fauna: Deer, opossum, lynx, squirrel, rabbit, bat, peccary, raccoon, marmot, water tortoise, soft-shelled tortoise, sucker, garfish, spadefoot

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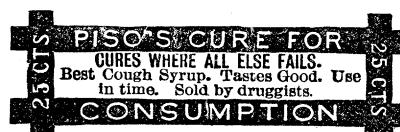
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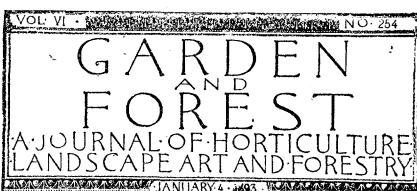
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toad, tapir. Of shells, two species of *Io*, seven of *Unio*, two of *Paludina* and *Trypanostoma* were found. Most important of all, in the opinion of the explorer, were remains of the peccary and tapir. Teeth of the latter, the speaker stated, were found so near the bottom of the deposit that they may have belonged to the lower alluvial strata, and not to the period of the human remains. In the discussion on the paper President Brinton stated that the tapir was commonly regarded as a South American animal, but that within our century it had been observed as far north as the Isthmus of Teotihuacan, and that it was not necessary to take refuge in the theory that the teeth of the tapir belonged to the lowest strata, as it is not unlikely that the tapir existed in the Gulf States within a comparatively recent time. Mr. Mercer gave an account of an Indian ossuary that he found in a rift in the Lookout Cave, and exhibited specimens of charred femurs and the fragment of a pierced gorget, with stone arrow points from this deposit. In conclusion, he urged the importance of a thorough exploration of the caves of the entire country as likely to settle the question of early man in America. Dr. Brinton did not think the absence of objects of a primitive type in caves as conclusive with reference to the absence of primitive man. Early man was probably arboreal, and did not live in caves at all. According to the best French archæologists, the man of the river drift was older than the cave man, and his bones are associated with remains of a fauna that required a tropical climate for their development. The fossil remains from the explorations were exhibited at the close of the meeting.

—It is with deepest regret that we announce the destruction by fire of the new Engineering Laboratory at Purdue University, LaFayette, Ind. It was burned on the night of Jan. 23—four days after its dedication. The fire originated in the boiler room and spread with great rapidity. Its progress could not be checked until the

larger part of a fine building had been destroyed. Three laboratory rooms were burned; the machine room with its twenty lathes, its planers, shapers, drill presses, milling machines, and its large supply of small tools; the forge room with its thirty-two power forges; and the laboratory for advanced work, which contains Purdue's now famous locomotive "Schenectady," a triple expansion Corliss engine and much other apparatus designed for work in steam engineering, hydraulics, and strength of materials. Nothing in these rooms escaped the fire. Not only was all the apparatus lost but also a large amount of experimental data. The main portion of the building was also consumed. This contained three stories, 50 feet by 150 feet. It was occupied by drawing rooms, recitation and lecture rooms, instrument rooms, offices and a mechanical museum. Some of the furniture and apparatus in these rooms was carried out before the fire took possession, but, as already stated, this part of the building was entirely burned. The only portion still standing comprises the wood room and foundry. These rooms were not damaged except by the temporary removal of the more portable portion of their equipment. The incidental losses by the fire are considerable. Members of the faculty have lost books, papers and data; students, their instruments, and manufacturers, in every part of the country, who, by gifts or liberal discounts, had coöperated in the equipment of the building, have lost their representation there. The excellent facilities for laboratory training which Purdue has been able to offer have made her engineering departments well known and have helped to draw to them a large number of students. It is hoped and expected that the new building will be quite as extensive and its equipment quite as complete as were the building and equipment which have been lost, and, since experience has suggested the modification of many details, it is but reasonable to expect the second plant to be better than the first.

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